

# Public pensions, changing employment patterns, and the impact of pension reforms across birth cohorts

A microsimulation analysis for Germany

Johannes Geyer<sup>1</sup> Viktor Steiner<sup>2</sup>

<sup>1</sup>DIW Berlin

<sup>2</sup>Free University Berlin

Poland and Germany: two approaches to reforming the pension  
system, October 29, 2010

## 1 Motivation and Background

- Motivation
- Labour market
- Lifetime employment and unemployment

## 2 Simulation results

- Individual pension benefits at retirement
- A more optimistic labor market scenario for East Germany

- 1 Motivation and Background
  - Motivation
  - Labour market
  - Lifetime employment and unemployment
- 2 Simulation results
  - Individual pension benefits at retirement
  - A more optimistic labor market scenario for East Germany
- 3 Conclusion

- 1 Motivation and Background
  - Motivation
  - Labour market
  - Lifetime employment and unemployment
- 2 Simulation results
  - Individual pension benefits at retirement
  - A more optimistic labor market scenario for East Germany
- 3 Conclusion

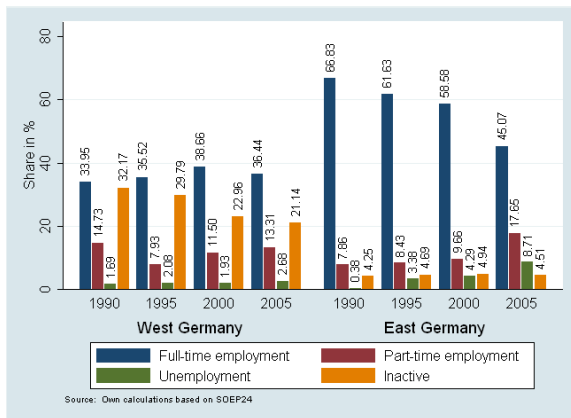
# Motivation

- Starting point: political debate about the sustainability of the German public pension system and the implications of a more “flexible” labor market
- Discussion shifted its focus from the financial sustainability of the system to the question of old age poverty
- Various pension reforms starting in 1992 improved the financial sustainability at the cost of less generosity of the pension system
- At the same time we observe a rapid change of employment relationships and a steady increase in long-term unemployment, particularly in east Germany

## Research questions

- How has labour market behaviour changed across cohorts?
- How do these changes affect labour income over the life cycle?
- What are the effects on old-age pensions across cohorts?
- How do changes in old-age income interact with the already implemented pension reforms?
- How will these changes translate into lifetime employment and unemployment patterns of younger birth cohorts?

## Example: Female careers across cohorts



Females, aged 40: Share of activities since 15<sup>th</sup> birthday

## Simulated lifetime employment/unemployment histories - West Germany

Education:	Full-time			Unemployment		
	Low	Middle	Higher	Low	Middle	Higher
<b>Men</b>						
1937-41	39.1	40.9	35.2	3.7	1.7	0.8
1942-46	38.6	39.4	34.3	4.0	2.1	1.3
1947-51	36.4	38.9	33.6	4.6	2.6	1.5
1952-56	37.4	39.0	33.4	5.4	2.7	1.8
1957-61	36.4	37.4	32.8	6.6	3.2	2.2
1962-66	35.3	36.4	33.7	8.2	3.1	2.0
1967-71	36.5	37.6	32.2	7.2	3.4	2.0
Total	37.3	38.9	33.5	5.2	2.6	1.7
<b>Women</b>						
1937-41	15.5	15.5	17.4	1.0	0.7	0.5
1942-46	14.9	16.5	18.7	1.2	0.9	0.7
1947-51	16.0	17.0	19.7	1.7	0.9	1.0
1952-56	16.1	16.5	19.1	2.2	1.1	1.4
1957-61	15.5	16.2	18.7	2.6	1.2	1.3
1962-66	14.5	16.0	19.1	2.9	1.5	1.3
1967-71	14.0	16.6	19.8	3.2	1.1	1.0
Total	15.2	16.4	19.1	2.1	1.1	1.1

## Simulated lifetime employment/unemployment histories - East Germany

Education:	Full-time		Unemployment	
	Low/Middle	Higher	Low/Middle	Higher
<b>Men</b>				
1937-41	40.4	37.2	2.3	1.4
1942-46	39.4	36.5	3.6	2.1
1947-51	38.7	34.5	4.6	2.9
1952-56	37.9	33.7	6.1	3.0
1957-61	36.2	33.2	7.9	3.9
1962-66	36.1	32.3	8.0	4.1
1967-71	35.7	31.3	9.4	5.2
Total	37.6	34.3	6.2	3.1
<b>Women</b>				
1937-41	30.6	34.8	3.1	1.8
1942-46	31.2	32.9	5.4	3.0
1947-51	30.5	33.1	6.9	3.8
1952-56	29.1	32.4	8.9	4.4
1957-61	28.4	31.5	9.9	4.8
1962-66	26.3	28.8	11.5	6.4
1967-71	24.0	26.6	13.3	7.0
Total	28.4	31.3	8.9	4.7

## Simulated reform effects

### Pension benefits in different scenarios (West German men)

Scenario Cohorts	I	II	(II-I)*100	III	IV	(III-IV)*100
1937 - 1941	1163	1161	0%			
1942 - 1946	1172	1145	-2%			
1947 - 1951	1226	1156	-6%			
1952 - 1956	1194	1102	-8%			
1957 - 1961	1176	1057	-10%			
1962 - 1966	1144	998	-13%			
1967 - 1971	1217	1045	-14%			

- Scenario I: Retirement age 65; constant CPV
- Scenario II: Retirement age 65; lowered CPV

## Simulated reform effects

### Pension benefits in different scenarios (West German men)

Scenario Cohorts	I	II	(II-I)*100	III	IV	(III-IV)*100
1937 - 1941	1163	1161	0%	1163		
1942 - 1946	1172	1145	-2%	1177		
1947 - 1951	1226	1156	-6%	1240		
1952 - 1956	1194	1102	-8%	1219		
1957 - 1961	1176	1057	-10%	1215		
1962 - 1966	1144	998	-13%	1195		
1967 - 1971	1217	1045	-14%	1271		

- Scenario I: Retirement age 65; constant CPV
- Scenario II: Retirement age 65; lowered CPV
- Scenario III: Retirement age 67; constant CPV

## Simulated reform effects

### Pension benefits in different scenarios (West German men)

Scenario Cohorts	I	II	(II-I)*100	III	IV	(III-IV)*100
1937 - 1941	1163	1161	0%	1163	1161	0%
1942 - 1946	1172	1145	-2%	1177	1150	-2%
1947 - 1951	1226	1156	-6%	1240	1169	-5%
1952 - 1956	1194	1102	-8%	1219	1125	-6%
1957 - 1961	1176	1057	-10%	1215	1091	-7%
1962 - 1966	1144	998	-13%	1195	1043	-9%
1967 - 1971	1217	1045	-14%	1271	1091	-10%

- Scenario I: Retirement age 65; constant CPV
- Scenario II: Retirement age 65; lowered CPV
- **Scenario III: Retirement age 67; constant CPV**
- Scenario IV: Retirement age 67; lowered CPV

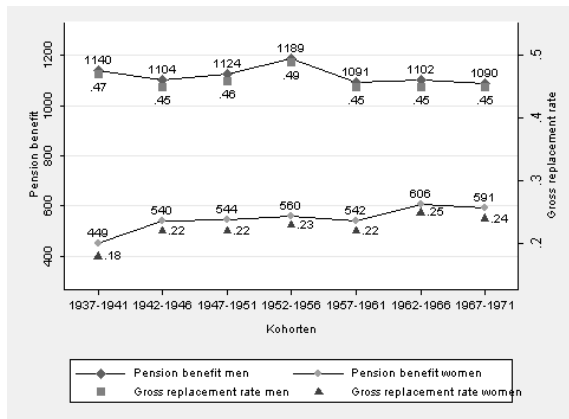
## Simulated reform effects

### Pension benefits in different scenarios (West German men)

Scenario Cohorts	I	II	(II-I)*100	III	IV	(III-IV)*100
1937 - 1941	1163	1161	0%	1163	1161	0%
1942 - 1946	1172	1145	-2%	1177	1150	-2%
1947 - 1951	1226	1156	-6%	1240	1169	-5%
1952 - 1956	1194	1102	-8%	1219	1125	-6%
1957 - 1961	1176	1057	-10%	1215	1091	-7%
1962 - 1966	1144	998	-13%	1195	1043	-9%
1967 - 1971	1217	1045	-14%	1271	1091	-10%

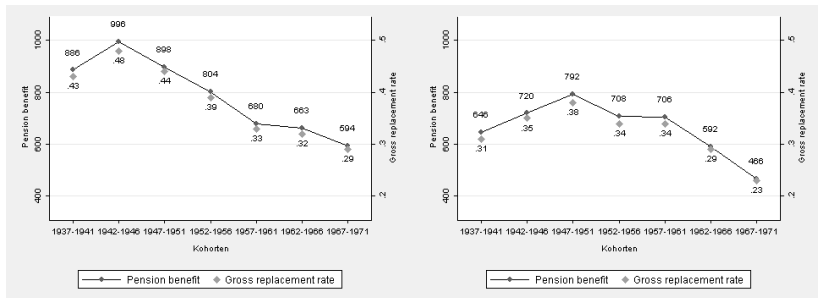
- Scenario I: Retirement age 65; constant CPV
- Scenario II: Retirement age 65; lowered CPV
- Scenario III: Retirement age 67; constant CPV
- **Scenario IV: Retirement age 67; lowered CPV**

# Individual pension levels: West Germany



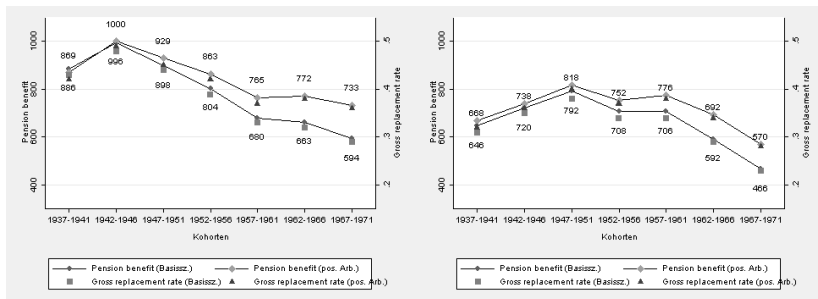
West Germany: Pension benefits for men and women

# Individual pension levels: East Germany



East Germany: Pension benefits for men and women

# A more optimistic scenario for East Germany



East Germany: Pension benefits for men and women

A more optimistic scenario for East Germany: Distribution of pension benefits (300 Euro brackets)

	Men	Women	$\Delta$ in %-points	
			Men	Women
<b>Cohort 1937-1971</b>				
0-300	0,2	1,1	0	-0,8
301-600	8	26,4	-11,6	-10,4
601-900	54,3	53,6	5,2	7,3
901-1200	30,5	15,6	4,6	2,1
1201-1500	6,4	3,2	1,8	1,6
1501+	0	0	-0,6	0
<b>Cohort 1937-1951</b>				
0-300	0,4	1,9	0	-0,7
301-600	2,2	20,5	-1,3	-2,2
601-900	45,1	54,5	-0,4	0,4
901-1200	40,3	18,8	0,6	0
1201-1500	10,6	3,8	1,1	2,1
1501+	0	0	-1,4	0
<b>Cohort 1952-1971</b>				
0-300	0	0,5	0	-0,9
301-600	12,2	30,5	-19,2	-16,1
601-900	61,1	52,9	9,3	12,2
901-1200	23,3	13,4	7,6	3,5
1201-1500	3,3	2,8	2,4	1,3
1501+	0	0	0	0

# Conclusion

- Estimated cohort effects in individual lifetime employment/unemployment in general confirm the popular view that employment has become more unstable in Germany, but this development differs significantly by region, gender, and level of education
- In West Germany lifetime employment has remained relatively stable, at least for people with medium or higher education, and has been increasing in younger birth cohorts of women, especially for those with higher education
- In East Germany, lifetime-employment is decreasing and long-term unemployment dramatically increasing for both men and women, even for those with higher education.

# Conclusion

- The extent of this decline depends on whether or not the future labor market situation improves for younger cohorts in East Germany. Even under relatively optimistic assumptions, lifetime employment of younger cohorts will decline and long-term unemployment dramatically increase in East Germany compared to older cohorts.
- This development will be reinforced by the recent pension reforms which have reduced the level of public pensions in order to secure its long-term stability. The increase in the statutory retirement age could partially compensate for the reduced pension level, provided the effective retirement age also increases.
- Among the younger age cohorts, especially those with low education, the average pension will be close or even below the minimum legal pension, and a relatively large share of this group will get individual pensions below this threshold. Although future public pensions of West German women will increase, on average, they will remain at a fairly low level.

# Conclusion

- The evolution of average per-capita pensions at the household level more or less resembles the results for individual pensions, both for East and West Germany.
- The sharp decline of the average pension level and the increase of the share of very low pensions in East Germany could be limited if the labor market situation improved for the younger cohorts on a long-term basis. A higher effective retirement age could also contribute to the stabilization of pensions.
- The extent to which these developments will translate into an increase in future poverty also depends on other income sources, the evolution of family structure, and the tax-benefit system, which is a topic of future research.